

**REMARKS**

In accordance with the foregoing, claims 11, 18, 27, 28, 37, 63 and 72 are amended; thus, the pending claims 1-72 remain for reconsideration, which is respectfully requested.

No new matter has been added and accordingly, entry and approval of the amended claims 11, 18, 27, 28, 37, 63 and 72 are respectfully requested.

**STATUS OF THE CLAIMS:**

Claims 1-72 are pending.

Claims 1-72 are rejected.

**REQUEST FOR INTERVIEW:**

The Applicants respectfully request the Examiner to contact the undersigned to schedule an interview to discuss the outstanding Office Action.

**ITEM 3: REJECTION OF CLAIMS 1-72 UNDER 35 U.S.C. §251 AS BEING BASED UPON NEW MATTER ADDED TO THE PATENT FOR WHICH REISSUE IS SOUGHT**

This rejection is respectfully traversed.

The Office Action, at page 4, asserts that with respect to the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes ... substantially correspond with a ratio of the specific weight values of said plurality of subframes," as recited in claim 1 "is **only readable in the second and third embodiments and not readable in the first embodiment** since the first embodiment does not teach 'calculating the number of sustain emissions.'" Applicants respectfully disagree with the assertion, because MPEP § 2163 (II)(3)(b)(2<sup>nd</sup> paragraph) recites:

To comply with the written description requirement of 35 U.S.C. 112, para. 1, or to be entitled to an earlier priority date or filing date under 35 U.S.C. 119, 120, or 365(c), each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure. When an explicit limitation in a claim "is not present in the written description whose benefit is sought it must be shown that **a person of ordinary skill would have understood, at the time the patent application was filed, that the description requires that limitation.**" *Hyatt v. Boone*, 146 F.3d 1348, 1353, 47 USPQ2d 1128, 1131 (Fed. Cir. 1998). See also *In re Wright*, 866 F.2d 422, 425, 9 USPQ2d 1649, 1651 (Fed. Cir. 1989)

(emphasis added).

U.S. Patent No. 5,943,032 (upon which this reissue application is based upon), at column 10, lines 30-49 recites, in part:

First, the brightness  $B$  of a panel is measured for some numbers  $P$  of sustain discharge pulses to get actually measured values in a gray scale-brightness characteristic as shown in FIG. 7, and the resultant curve is made  $B=f_1(P)$  of the equation (1). ...

A case of optimization according to the embodiment will be shown exemplifying the actually measured values in the gray scale-brightness characteristic shown in FIG. 7. Assuming the brightness of subframe SF3 to be 60 cd/mxm, the brightness of subframe SF2 is half of 60, 30 cd/mxm, the brightness of subframe SF1 is half of 30, 15 cd/mxm. In this case the numbers of sustain discharge pulses for each gray level are as set forth in Table 1 below.

In other words, the application specification provides, for example, that in the first embodiments, an equation of the relation between the number of sustain discharge pulses and actually measured grey sale brightness  $B=f_1(p)$  is first obtained, and based on this equations, the number of sustain emissions is obtained so as to make a brightness of SF2, SF2 and SF3 to be 1:2:4. That is, in the exemplary embodiment discusses above, the number of sustain emissions are obtained referencing brightness using the equation  $B=f_1(p)$ . Applicants respectfully submit that "a person of ordinary skill would have understood, at the time the patent application was filed, that the description requires that limitation," that is, that obtaining the number of sustain emissions corresponds to a "calculating."

Accordingly, Applicants respectfully submit that the specification clearly supports the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] substantially correspond with a ratio of the specific weight values of said plurality of subframes," as recited in claim 1, for the exemplary first, second and third embodiments discussed in the specification.

The Office Action, at page 4, further asserts that the claimed "a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the specific weight values of said plurality of subframes," as recited in claim 1, "**is only readable in the first embodiment and not readable in the second and third embodiments** since the second or third embodiment does not teach a ratio relationship between a ratio of number of sustain emissions of said plurality of subframes and a ratio of the weight values of said plurality of subframes or a ratio of numbers of sustain emissions of said plurality subframes being not equal the ratio of weight values of said plurality of subframes."

Applicants respectfully disagree with the assertion, because FIG. 8 of the present application (corresponding to the first exemplary embodiment) shows by the dotted line that "a ratio of numbers of sustain emissions of said plurality of subframes" and "the ratio of the weight values of the plurality of subframes" are equal. That is, the ratio of sustain discharge pulses is, as shown in FIG. 8, 20:40:80 and the ratio of gray levels of adjacent subframes is SF1:SF2:SF3 = 1:2:4. Similarly, in FIG. 9, corresponding to a second exemplary embodiment, and FIG. 10, corresponding to a third exemplary embodiment, the dotted lines show that a ratio of sustain discharge pulses is 20:40:80 and the ratio of gray levels of adjacent subframes is SF1:SF2:SF3 = 1:2:4, and, as seen in FIGS 8, 9 and 10, the three exemplary optimizations are shifted from the dotted lines. Accordingly, Applicants respectfully submit that the specification clearly supports the recitation of claim 1 that the "ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the specific weight values of said plurality of subframes" reads upon each of the first, second and third exemplary embodiments.

Applicants respectfully submit that the specification supports the subject matter of independent claims 2 and 3 for similar reasons as discussed with respect to claim 1 above. Furthermore, dependent claims 4-17 are rejected solely for their dependence upon claim 3, accordingly, Applicants respectfully submit that claims 4-17 are supported by the application specification.

Furthermore, in accordance with the foregoing, claim 18 is amended to recite, in part: "displaying the image on said plasma display device by optionally combining gray levels of said plurality of subframes, wherein numbers of sustain emissions of each gray level are calculated so as to make a ratio of brightnesses of each gray level ... substantially correspond with a ratio of ... each gray level and a ratio of numbers of sustain emissions of each gray level does not equal the ratio ... of each gray level." Support for the claim amendment can be found at column 11, lines 31-38 of U.S. Patent No. 5,943,032. Furthermore, the dotted lines shown in FIGS. 8-10 indicate that the number of pulses in the order of SF1:SF2:SF3 = 20:40:80, and as seen in FIGS. 8-10, the exemplary optimization solid lines are different from the dotted lines, and, thus, the specification supports the claimed "displaying the image on said plasma display device by optionally combining gray levels of said plurality of subframes, wherein numbers of sustain emissions of each gray level are calculated so as to make a ratio of brightnesses of each gray level ... substantially correspond with a ratio of ... each gray level and ratio of numbers of sustain emissions of each gray level does not equal the ratio ... of each gray level," as recited in claim 18, as reading upon the three exemplary embodiments.

Furthermore, dependent claims 19-26 are rejected solely for their dependence upon claim 18, accordingly, Applicants respectfully submit that claims 19-26 are supported by the application specification.

Claim 27 is amended to recite, in part: "an image on said plasma display device is displayed by optionally combining gray levels of said plurality of subframes, wherein numbers of sustain emissions of each gray level are calculated so as to make a ratio of brightnesses of each gray level ... substantially correspond with a ratio of ... each gray level, and a ratio of numbers of sustain emissions of each gray level does not equal the ratio of ... each gray level." Accordingly, Applicants respectfully submit that claim 27 is supported in the specification for similar reasons as claim 18.

Furthermore, in accordance with the foregoing, claim 28 is amended to recite, in part: "A method of controlling a gray scale of a plasma display device, wherein said method comprises: ... setting a number of sustain emissions, individually for and corresponding to the predetermined brightness of each individual subframe, **numbers of sustain emissions of** different subframes bearing a non-linear relationship to the different, predetermined brightnesses of the respective, different subframes." Support for the claim amendment can be found, for example, in FIG. 7. Accordingly, Applicants respectfully submit that the specification supports the features of claim 28. In claim 28, the recitation "the steps of" was deleted from the preamble, and the recitation "numbers of sustain emissions of" was added to the claim.

Dependent claims 29-36 are rejected solely for their dependence upon claim 28, accordingly, Applicants respectfully submit that claims 29-36 are supported by the application specification.

Claim 37 is amended to recite, in part: "a memory having set therein a number of sustain emissions individually for, and corresponding to, the predetermined brightness of each individual subframe, **numbers of sustain emissions of** different subframes bearing a non-linear relationship to the different predetermined brightnesses of the respective, different subframes." Accordingly, Applicants respectfully submit that the specification supports the features of claim 37 for similar reasons as discussed above, with respect to claim 28. In claim 37, the recitation the recitation "numbers of sustain emissions of" was added to the claim.

Dependent claims 38-45 are rejected solely for their dependence upon claim 37, accordingly, Applicants respectfully submit that claims 38-45 are supported by the application specification.

Applicants respectfully submit that the specification supports the subject matter of independent claims 46-48 for similar reasons as discussed with respect to claim 1 above. Furthermore, dependent claims 49-62 are rejected solely for their dependence upon claim 48, accordingly, Applicants respectfully submit that claims 49-62 are supported by the application specification.

Claim 63 is amended to recite, in part: "displaying the image on said plasma display device by optionally combining gray levels of said plurality of subframes, wherein numbers of sustain emissions of each gray level are calculated so as to make a ratio of brightnesses of each gray level substantially correspond with a ratio of [specific weight values of] each gray level and a ratio of numbers of sustain emissions of each gray level does not equal the ratio of [the specific weight values of] each gray level." Accordingly, Applicants respectfully submit that the specification supports claim 63 for similar reasons, as discussed above with respect to claim 18. The recitations "specific weight values of" and "the specific weight values of" as shown in the brackets above were deleted from the claim and the recitation "the steps of" was deleted from the preamble of the claim.

Dependent claims 64-71 are rejected solely for their dependence upon claim 63, accordingly, Applicants respectfully submit that claims 64-71 are supported by the application specification.

Claim 72 is amended to recite, in part: "numbers of sustain emissions of each gray level are calculated so as to make a ratio of brightnesses of each gray level substantially correspond with a ratio of [specific weight values of] each gray level, and a ratio of numbers of sustain emissions of each gray level does not equal the ratio of [specific weight values of] each gray level." Accordingly, Applicants respectfully submit that the specification supports claim 72 for similar reasons, as discussed above with respect to claim 18. The recitations "specific weight values of" and "the specific weight values of" as shown in the brackets above were deleted from the claim.

Accordingly, Applicants respectfully submit that the application specification supports the subject matter of claims 1-72. Withdrawal of the claim rejection is respectfully requested.

**ITEMS 4-5: REJECTION OF CLAIMS 1-72 UNDER 35 U.S.C. § 112, FIRST PARAGRAPH AS FAILING TO COMPLY WITH THE WRITTEN DESCRIPTION REQUIREMENT**

This rejection is respectfully traversed.

Accordingly, Applicants respectfully submit that the application specification supports the subject matter of claims 1-72 for the reasons discussed above. Withdrawal of the claim rejection is respectfully requested.

**ITEMS 6-7: REJECTION OF CLAIMS 1-11, 18, 27, 46-56, 63 AND 72 AS BEING ANTICIPATED BY THE ALLEGED APPLICANTS ADMITTED PRIOR ART (HEREINAFTER "ALLEGED AAPA")**

This rejection is respectfully traversed.

The Office Action, in response to arguments, asserts:

since the claimed invention does not explicitly recite the actually measured brightness and the relationship of the ideal brightness with respect to the number of sustain discharges is linear, **Fig. 7 of AAPA shows the ratio of (ideal value) brightness of said plurality of subframes substantially corresponding with a ratio of the specific weight values of said plurality of subframes**

(emphasis added). Applicants respectfully submit that one of ordinary skill in the art would recognize that FIG. 7 fails to disclose, either expressly or inherently, the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] substantially correspond with a ratio of the specific weight values of said plurality of subframes," because the "ideal value" of FIG. 7 relied upon by the Office Action, is merely an **ideal value**, and, further, that one skilled in the art would recognize that FIG. 7 fails to disclose, either expressly or implicitly, any method to achieve or even approximate the "ideal value." That is, the mere display of an ideal value fails to disclose, either expressly or inherently, any method for "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] substantially correspond with a ratio of the specific weight values of said plurality of subframes," because FIG. 7 merely shows what the ideal value would be.

The Office Action, at item 7, further asserts "wherein a ratio of numbers of sustain emissions in the order of SF4:SF2:SF3:SF1 is 80:20:40:10 and a ratio of the specific weight values of said plurality of subframes in the order of SF1:SF2:SF3:SF4 is 1:2:4:8, i.e., the ratio of the numbers of sustain emissions of subframes does not equal to the ratio of the specific weight values of said plurality of subframes." However, one skilled in the art would recognize that a "ratio" is a relation between two elements (for example, SF4:SF2 may have a ratio of a number of sustain emissions of 80:20 and a weight value of 4:1). Further, although the Examiner has

stated that the claims do not recite any order of a ratio of the numbers of sustain emissions or any order of a ratio of weight values, Applicants respectfully submit that one skilled in the art would recognize that an order of ratios is not changed when **making ratios correspond**. In other words, the Alleged AAPA does not disclose the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] **substantially correspond** with a ratio of the specific weight values of said plurality of subframes, wherein a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the specific weight values of said plurality of subframes," as recited in claim 1.

Accordingly, Applicants respectfully submit that an anticipation rejection cannot be based upon the Alleged AAPA, because the Alleged AAPA fails to disclose, either expressly or inherently, each and every feature of the claimed embodiment, including the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] substantially correspond with a ratio of the specific weight values of said plurality of subframes, wherein a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the specific weight values of said plurality of subframes," as recited in claim 1.

Applicants respectfully submit that independent claims 2, 3, 18, 27, 46, 47, 63 and 72 patentably distinguish over the cited reference for similar reasons as independent claim 1.

Dependent claims 4-11 and 48-56 are patentably distinguishing at least due to their dependence from the independent claims and/or for reciting patentably distinguishing features of their own. Withdrawal of the rejection of the pending claims and allowance of the pending claims is respectfully requested

**ITEM 8: REJECTION OF CLAIMS 1-11, 18, 27, 46-56, 63 AND 72 AS BEING ANTICIPATED BY SHINODA, U.S. PATENT NO. 5,541,618 (HEREINAFTER "SHINODA")**

This rejection is respectfully traversed.

Shinoda, at column 3, lines 36-40, recites: "Each display period CYi1 to CYi8 has different time length essentially having a ratio 1:2:4:8:16:32:64:128 so that different **numbers of sustain pulses** of same frequency are included in **approximately proportional to this ratio in the display periods** of the respective subframes." In other words, Shinoda discusses that the weight value of each subframe (SF) is equal to a ratio of the number of sustain emissions. Furthermore, Shinoda at column 3, line 40-43 recites: "Visual brightness, i.e. the gradation of the

brightness, of a lit cell is determined by the number of the sustain pulses accumulated for the single frame period." In other words, Shinoda discusses that the brightness equals the number of sustain emissions. Thus, Shinoda discusses that the brightness is equal to the weight value of the SF.

Since Shinoda was written, it has been discovered that the brightness is not proportional to the number of sustain emissions. Thus, according to the embodiment of claim 1, it is now known that the actual relationship between the number of sustain emissions and the brightness is non-linear. Namely, as shown by the dashed line (actual measured value) in FIG. 7 of the present application, in the actual display where the brightness is 40 cd/mm<sup>2</sup> is obtained by applying 40 sustain emissions, twice the brightness (80 cd/mm<sup>2</sup>) of 40 cd/mm<sup>2</sup> cannot be obtained, but a brightness of 60 cd/mm<sup>2</sup> is obtained by applying twice the number (80) of the 40 sustain emissions.

Accordingly, Applicants respectfully submit that an anticipation rejection cannot be based upon the Shinoda, because Shinoda fails to disclose, either expressly or inherently, each and every feature of the claimed embodiment, including the claimed "calculating numbers of sustain emissions of said plurality of subframes so as to make a ratio of brightnesses of said plurality of subframes [so as to] substantially correspond with a ratio of the specific weight values of said plurality of subframes, wherein a ratio of numbers of sustain emissions of said plurality of subframes does not equal the ratio of the specific weight values of said plurality of subframes," as recited in claim 1, because Shinoda discusses that "**numbers of sustain pulses** of same frequency are included in **approximately proportional to this ratio in the display periods of the respective subframes.**"

Applicants respectfully submit that independent claims 2, 3, 18, 27, 46, 47, 63 and 72 patentably distinguish over the cited reference for similar reasons as independent claim 1.

Dependent claims 4-11 and 48-56 are patentably distinguishing at least due to their dependence from the independent claims and/or for reciting patentably distinguishing features of their own. Withdrawal of the rejection of the pending claims and allowance of the pending claims is respectfully requested

### CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.



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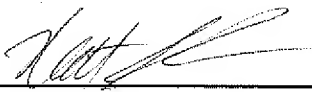
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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